



Office of Audits
Office of Inspector General
U.S. General Services Administration

Audit of GSA's Transition From Lotus Notes to the Cloud

*Report Number A120131/O/F/F12004
September 28, 2012*



Office of Audits
Office of Inspector General
U.S. General Services Administration

REPORT ABSTRACT

OBJECTIVES

The objective of this audit was to evaluate GSA's efforts to transition from the Lotus Notes environment to determine whether:

- (1). The transition of email and collaboration tools to cloud services incorporated adequate performance measures and sufficient cost justifications to realize the stated goals.
- (2). The transition of existing Lotus Notes applications to other platforms, including cloud platforms, incorporated project management controls necessary for retiring Lotus Notes in a timely manner.

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Audit of GSA's Transition From Lotus Notes to the Cloud

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WHAT WE FOUND

We identified the following during our audit:

Finding 1 – Some aspects of the projected cost savings for the transition cannot be verified because the OCIO has not updated the cost analysis or maintained the supporting documentation.

Finding 2 – The OCIO cannot fully assess whether the transition project is accomplishing its goals because the performance measures are unclear, lack targets, or were not updated.

Finding 3 – The OCIO did not perform an enterprise-wide assessment of the applications migrating to the cloud for redundancies, which could result in wasted resources.

WHAT WE RECOMMEND

We recommend that the GSA Chief Information Officer:

- (1). Prepare an updated analysis/justification regarding the email and collaboration tools project savings using actual figures and implement procedures for updating documentation related to the project savings analysis on a regular basis, as well as when significant changes occur.
- (2). Develop and implement a comprehensive performance measurement program to effectively monitor the progress of the email and collaboration tools transition project in accomplishing the project objectives and goals.
- (3). Conduct an assessment of the current cloud environment to identify duplicate applications and take necessary actions to consolidate or eliminate any redundancies.

MANAGEMENT COMMENTS

Management agreed with our findings and recommendations. The GSA CIO's complete response is presented in **Appendix C**.



**Office of Audits
Office of Inspector General
U.S. General Services Administration**

DATE: September 28, 2012
TO: Casey Coleman
Chief Information Officer (I)
FROM: William Salamon 
Audit Manager (JA-F)
SUBJECT: Audit of GSA's Transition from Lotus Notes to the Cloud
Report Number A120131/O/F/F12004

This report presents the results of our Audit of GSA's Transition from Lotus Notes to the Cloud. Our findings and recommendations are summarized in the Report Abstract. Instructions regarding the audit resolution process can be found in the email that transmitted this report.

Your written comments to the draft report are included in **Appendix C** of this report.

If you have any questions regarding this report, please contact me or any member of the audit team at the following:

| | | | |
|-----------------|-------------------|--|----------------|
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On behalf of the audit team, I would like to thank you and your staff for your assistance during this audit.

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Introduction

On December 9, 2010, the U.S. Chief Information Officer issued the *25 Point Implementation Plan to Reform Federal Information Technology Management*. The purpose of the plan is to assist agencies in leveraging information technology to create a more efficient and effective government and deliver more value to the American taxpayer. A major facet of the plan is the “Cloud First” policy, which required that each agency Chief Information Officer identify three “must move” services to cloud solutions and retire the corresponding legacy systems. The General Services Administration (GSA) identified email, power management services, and correspondence tracking as the three “must move” services to be migrated to the cloud environment.

GSA’s Lotus Notes infrastructure contained thousands of applications, many of which were redundant or dormant, developed throughout GSA and maintained on Lotus Notes servers and databases housed at 17 different locations. The infrastructure lacked the level of integrated features needed for conducting business in an efficient manner. To reduce its in-house system maintenance burden and provide its users with the most up-to-date commercial service offerings, GSA opted to migrate its email system to the cloud environment in accordance with the “Cloud First” mandate. In addition, GSA is also in the process of decommissioning or migrating thousands of legacy Lotus Notes applications from the infrastructure to new platforms.

In December 2010, GSA awarded a firm-fixed priced contract for the acquisition of email and collaboration services to the Unisys Corporation. As a result of this contract, GSA became the first federal agency to move its entire staff to a single cloud-based email system in June 2011. This solution was expected to provide faster upgrades, reduce management costs, curtail the need for lengthy and costly procurements of information technology assets, and improve customer service. In addition, users would have access to collaboration tools such as Google Docs, Google Calendar, and Google Sites. GSA estimated that it would save about \$15 million from the email transition over five years.

In August 2011, GSA awarded a 5-year contract to Salesforce.com for its customer relationship management modules, Force.com application development platform, and the Chatter collaboration suite. In an effort to decommission or migrate thousands of applications built in the Lotus Notes collaboration environment, GSA is primarily using the Force.com platform to transition these applications to the cloud.

The objective of this audit was to evaluate GSA’s efforts to transition from the Lotus Notes environment to determine whether:

- (1). The transition of email and collaboration tools to cloud services incorporated adequate performance measures and sufficient cost justifications to realize the stated goals.

- (2). The transition of existing Lotus Notes applications to other platforms, including cloud platforms, incorporated project management controls necessary for retiring Lotus Notes in a timely manner.

See **Appendix A** – Purpose, Scope, and Methodology for additional details.

Results

Finding 1 – Some aspects of the projected cost savings for the transition cannot be verified because the OCIO has not updated the cost analysis or maintained the supporting documentation.

The OCIO projected that the transition of the email and collaboration tools from Lotus Notes to Google would save \$15 million over five years. However, the OCIO has not updated and maintained the supporting cost analysis associated with either its estimates of future benefits or the cost comparisons. As a result, we were unable to verify whether the OCIO is making adequate progress towards its projected savings.

The OCIO identified three areas where savings were projected as a result of the transition: (1) government staffing, (2) infrastructure (e.g. licensing, maintenance, and hardware), and (3) contractor support. The OCIO was able to provide supporting documentation to verify the infrastructure costs for both the Lotus Notes and Google environments. The licensing costs for Google indicated that GSA realized approximately \$182,000 in additional savings than initially projected; however, the cost analysis to include the actual savings associated with Google licensing has not been updated. In addition, the OCIO was unable to provide documentation supporting its analysis regarding the initial projected savings for government staffing and contractor support. The OCIO stated that it was unable to locate the supporting cost analysis due to staffing changes within the organization. As a result, the OCIO is not aware of the amount of potential costs or savings incurred for this project and misstated savings could impact future funding decisions.

To assess its progress toward cost savings from the transition, the OCIO should develop a new cost analysis for the project and ensure that it is maintained. According to the Office of Management and Budget (OMB), elements of a benefit-cost or cost-effectiveness analysis should be explicit about the underlying assumptions used to arrive at estimates of future benefits and costs.¹ The analysis should include a statement of the assumptions, the rationale behind them, and a review of their strengths and weaknesses.

¹ OMB A-94: *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs Section 5(c)(2)*

Finding 2 – The OCIO cannot fully assess whether the transition project is accomplishing its goals because the performance measures are unclear, lack targets, or were not updated.

The OCIO established four goals for the email and collaboration tools transition project as follows:

- Modernization of Email;
- Provision of an Effective Collaborative Environment;
- Reduction of the Government’s in-house system maintenance burden; and
- Application of appropriate security and privacy safeguards.

However, the performance measures used to track the progress towards each of the stated project goals are unclear, lack targets, or have targets that were not amended to reflect the current environment. For example, the OCIO has not updated its cost analysis to reflect its progress in accomplishing the performance measure of decreasing the in-house maintenance burden by reducing email support staff (see **Appendix B** for the full list of goals, performance measures, and related issues).

This occurred because the OCIO has not performed a comprehensive assessment of the identified performance measures to ensure that they are consistent with the actual progress of the transition project. According to OMB,² agencies must establish and validate a performance measurement baseline with clear cost, schedule, and performance goals. Further, the Government Accountability Office defines performance measurement as the ongoing monitoring and reporting of program accomplishments, particularly progress toward pre-established goals.³ Without adequate performance measures that are clear and that include established targets, the OCIO cannot fully assess how well the transition project is progressing in accomplishing its goals or determine areas in need of improvement.

Finding 3 – The OCIO did not perform an enterprise-wide assessment of the applications migrating to the cloud for redundancies, which could result in wasted resources.

The OCIO did not establish sufficient controls to ensure that redundant applications were not migrated to the cloud environment. As part of the application migration efforts, the Service and Staff Offices took a decentralized approach for identifying duplicate applications within their organizations. As a result, each Service and Staff Office developed an inventory of applications to decommission or migrate to other platforms. However, the OCIO did not perform an analysis of the resulting application inventories to ensure that duplicate applications between organizations were identified and

² OMB Memorandum 05-23: *Improving Information Technology Project Planning and Execution, Attachment A.*

³ GAO-11-646SP: *Performance Measurement and Evaluation Definition and Relationships.*

removed. At least one redundant application⁴ was migrated to the cloud environment and it is uncertain if others exist. To control future application development in the cloud, the OCIO established the Center of Excellence (COE) as an enterprise-wide governance structure. The COE will act as a decision center that will review every request to build an application for redundancies. Without the proper controls to ensure that redundant applications do not exist, the agency could be developing and supporting other applications with similar functionality. This could result in wasted resources, inefficiencies, and the potential for the overdevelopment of applications in the cloud.

Recommendations

We recommend that the GSA Chief Information Officer:

- (1). Prepare an updated analysis/justification regarding the email and collaboration tools project savings using actual figures and implement procedures for updating documentation related to the project savings analysis on a regular basis, as well as when significant changes occur.
- (2). Develop and implement a comprehensive performance measurement program to effectively monitor the progress of the email and collaboration tools transition project in accomplishing the project objectives and goals.
- (3). Conduct an assessment of the current cloud environment to identify duplicate applications. Take the necessary actions to consolidate or eliminate any duplicate applications that are identified through the assessment.

Management Comments

Management agreed with our findings and recommendations. The GSA CIO's complete response is presented in **Appendix C**.

⁴ When asked if duplicate applications currently exist in the cloud environment, the OCIO stated that it was aware of one instance of an application known to be duplicative across organizations, the Project Tracking Tool. The OCIO stated that this redundancy has been resolved.

Conclusion

Although GSA's OCIO has stated its goals for the email and collaboration tools transition, it has not established adequate performance measures to track and monitor the progress of the project to ensure it is accomplishing its intended goals. Also, the OCIO has projected savings for the overall transition project; however, it has not updated and maintained the supporting cost analysis used to arrive at these projections. Therefore, we were unable to verify whether adequate progress is being made toward the projected savings goals. In addition, the OCIO and the Service and Staff Offices have plans in place to continue migrating their applications from the Lotus Notes collaboration environment to other platforms using the enterprise-wide governance structure for increased oversight. However, this control was not in place across the agency to ensure that duplicate applications were not migrated at the onset of the transition project.

Taking the recommended steps in this report to improve the management of GSA's efforts to transition from the Lotus Notes environment to the cloud will better enable the OCIO to track the progress of the current transition project as well as prepare for future transitions to other cloud computing solutions.

Appendix A – Purpose, Scope, and Methodology

Purpose

The Office of Inspector General included this audit in its fiscal year 2012 audit plan.

Scope

The audit's scope included: (1) the performance measures and cost justification related to GSA's transition of email and collaboration tools to its new platform and (2) project management controls related to the transition of existing Lotus Notes applications to other platforms.

Methodology

To accomplish our objectives, we:

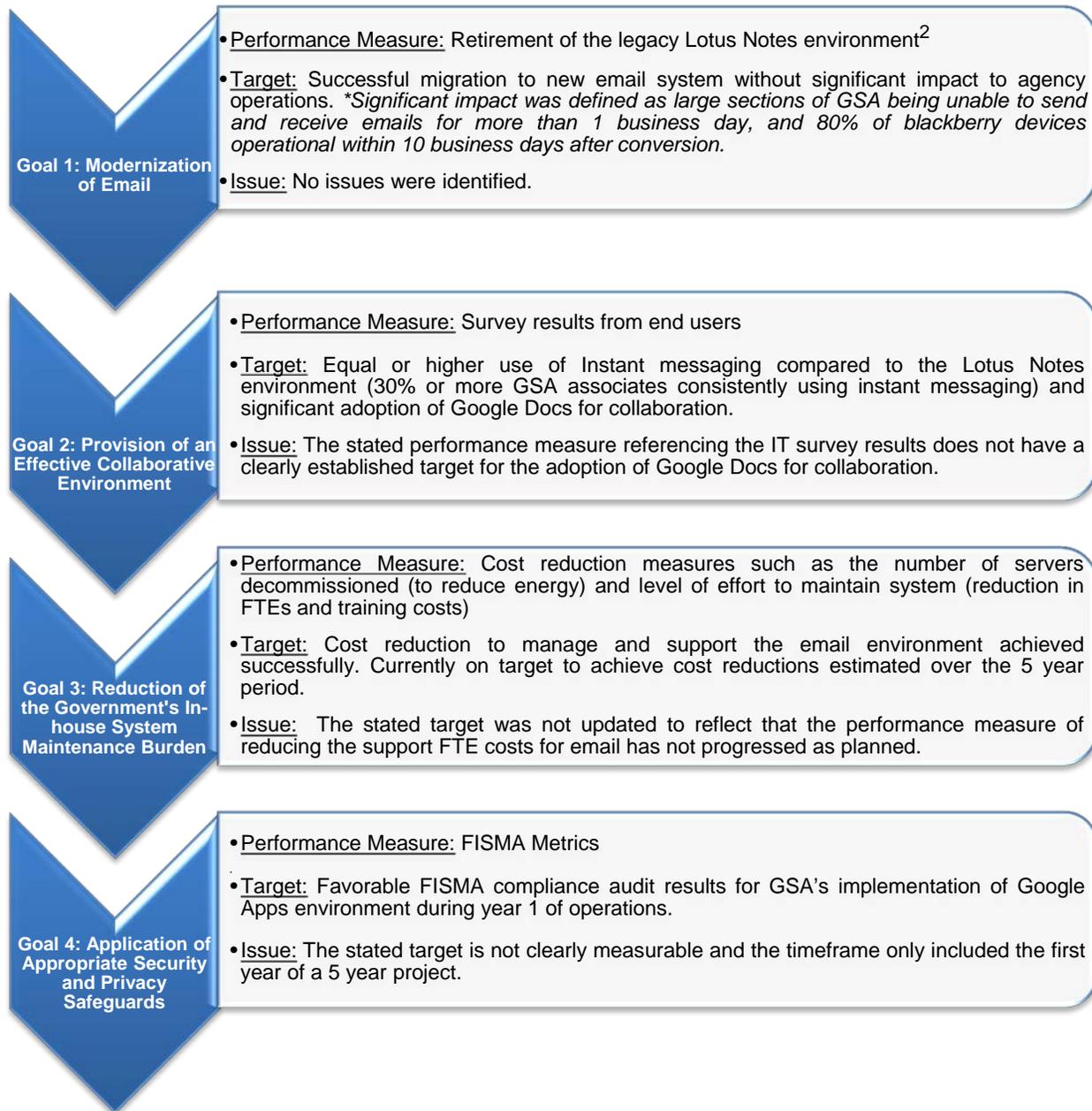
- Reviewed prior audit reports and implementation reviews, including those related to the Lotus Notes infrastructure issued by the GSA Office of Inspector General;
- Reviewed policies, procedures, publications, memorandums, and circulars issued by the Office of Management and Budget, National Institute of Standards, and the GSA Office of the Chief Information Officer;
- Reviewed GSA's Statement of Objectives for Email and Collaborative Services and associated contract documentation;
- Obtained the Lotus Notes application inventories maintained by the OCIO, Public Buildings Service (PBS), Federal Acquisition Service (FAS), and the Office of the Chief People Officer (OCPO);
- Reviewed application migration plans from Lotus Notes to other platforms for the OCIO, PBS, FAS, and OCPO;
- Obtained and reviewed prior year invoices associated with the licensing, hardware, and maintenance costs for the legacy Lotus Notes infrastructure and Google licensing costs;
- Obtained and reviewed executive briefings compiled by the OCIO presenting the email and collaboration tools transition project goals, projected savings, and progress;
- Selected a random sample of applications from the inventory lists provided by the OCIO, PBS, and FAS and verified the existence of the applications migrated from Lotus Notes to other platforms;
- Reviewed documentation related to the internal and enterprise-wide governance processes used by the OCIO, PBS, FAS, and OCPO to review and approve the development of an application on a new platform;
- Conducted meetings and corresponded with personnel from the OCIO regarding the project performance measures and targets; and
- Conducted meetings with the OCIO, PBS, FAS, and OCPO regarding the migration planning process.

We conducted the audit between May 2012 and August 2012 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Internal Controls

Our evaluation of internal controls was limited to those controls that allowed us to reasonably address our audit objectives. This included an evaluation of internal controls established by the OCIO for monitoring the progress of the project and cost justifications for GSA's transition of email and collaboration tools to its new platform. This also included evaluating internal controls related to project management for the decommissioning and migration of applications from the Lotus Notes infrastructure to other platforms for the OCIO, PBS, FAS, and the OCPO. This audit did not include the evaluation of all internal controls related to GSA's transition from Lotus Notes to other platforms.

Appendix B – Performance Measurement Issues¹



¹ In response to our request for the performance measures and targets used to evaluate the success of the email and collaboration tools transition project, the OCIO provided the statements above regarding the project goals, performance measures, and targets currently used. We prepared this chart to display the OCIO's response and present the issues we identified during the audit.

² The Lotus Notes environment refers to the legacy email and collaboration tools environment.

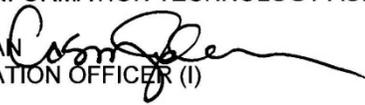
Appendix C – Management Comments



GSA Office of the Chief Information Officer

September 12, 2012

MEMORANDUM FOR CAROLYN PRESLEY-DOSS
DEPUTY ASSISTANT INSPECTOR GENERAL FOR
FINANCE AND INFORMATION TECHNOLOGY AUDITS (JA-F)

FROM: CASEY COLEMAN 
CHIEF INFORMATION OFFICER (I)

SUBJECT: Audit of GSA's Transition from Lotus Notes to the Cloud
Audit Number A120131

This is in response to the Audit of GSA's Transition from Lotus Notes to the Cloud.

My staff has reviewed the draft audit report and we agree with the findings and recommendations.

If you have any questions, please contact Daryle Seckar, Director, Office of Enterprise Management Services (IE), on 202-208-5054.

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Appendix D – Report Distribution

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Acting Commissioner, Federal Acquisition Service (Q)

Chief People Officer (C)

Division Director, GAO/IG Audit Response Division (H1C)

Audit Liaison, Office of the Chief Information Officer (I)

Audit Liaison, Public Buildings Service (P)

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